

D1  
End

a data processor adapted for calculating a differences or average differences in arrival times of corresponding particles at said first and second detectors to enable said m/z characteristics to be determined.

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D2

23. (Amended) A method for measuring the m/z of ionized particles using a time of flight spectrometer, the method comprising:

- generating the ionized particles;
- accelerating the ionized particles to form an ion beam;
- reflecting at least some of the ionized particles from the ion beam towards at least one of a first and second detector;
- detecting at least some of the ionized particles with the first and second detectors, wherein the detecting includes intercepting at least a first portion of the reflected ionized particles with the second detector and permitting a second portion of the reflected ionized particles to continue past the second detector; and
- calculating the m/z of at least some of the detected ionized particles using a difference or average difference in the time of flights for any or all ions of a given m/z to each of the two detectors.

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D3

26. (Amended) A time of flight mass spectrometer for measuring the m/z of ionised particles, the spectrometer comprising:

- an ion source for generation of said ionised particles;
- an accelerator for acceleration of said ionised particles so as to form an ion beam;
- at least two detectors for sampling from the ion beam, such that a share of the ion beam is detected on each of the two detectors; and
- means for using the difference or average differences in the time of flights for any or all ions of a given m/z to each of the two detectors for improving the accuracy of measurement of the m/z values of ions.

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D4 27. (New) A method for measuring the  $m/z$  of ionised particles using a time of flight mass spectrometer, the method comprising:  
generating said ionised particles using an ion source;  
accelerating said ionised particles so as to form an ion beam; and  
sampling from the ion beam using at least two detectors, such that a share of the ion beam is detected on each of the two detectors, wherein the difference or average differences in the time of flights for any or all ions of a given  $m/z$  to each of the two detectors is used for improving the accuracy of measurement of the  $m/z$  values of ions.

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